

AMENDMENTS

In the Claims

Please cancel claims ~~2-4, 6, 9, 13, 17, 20, and 55.~~

Please amend claims 1, 4-5, 7-8, 10-12, 14, 18-19, 21, 26, 28-29, 31-32, 53, and 56 as follows.

1. (Currently Amended) ~~An isolated~~ A transgenic plant comprising a recombinant nucleic acid molecule encoding PNHX transporter a polypeptide or a fragment of a plant polypeptide having Na⁺/H⁺ transporter activity that provides increased salt tolerance in a cell, wherein said nucleic acid molecule is selected from the group consisting of: not the sequence of the gene A_TM021B04.4 or complementary to all of the sequence of the gene A_TM021B04.4

(a) a nucleic acid molecule of the coding strand shown in SEQ ID NO:1, or a complement thereof;

(b) a nucleic acid molecule encoding the same amino acid sequence as encoded by the nucleotide sequence of (a);

(c) a nucleic acid molecule that specifically hybridizes under highly stringent conditions to the sequence set forth in SEQ ID NO:1 or the complement of the sequence set forth in SEQ ID NO:1; and

(d) a nucleic acid molecule encoding a PNHX transporter polypeptide that specifically hybridizes under moderately stringent conditions to the sequence set forth in SEQ ID NO:1 or the complement of the sequence set forth in SEQ ID NO:1.

Claims ~~2-4~~ (Cancelled)

5. (Currently Amended) The transgenic plant of claim 1 ~~The nucleic acid molecule of any of claims 1 to 4,~~ wherein the PNHX transporter polypeptide comprises an AtNHX transporter polypeptide having Na⁺/H⁺ transporter activity that provides increased salt tolerance in a cell.

Claim 6 (Cancelled)

D₃ 7. (Currently Amended) A transgenic plant comprising a recombinant ~~An~~ AtNHX nucleic acid molecule isolated from *Arabidopsis thaliana* or a fragment thereof encoding a transporter polypeptide having Na⁺/H⁺ transporter activity that provides increased salt tolerance in a cell, wherein said nucleic acid molecule is not the sequence of the gene A_TM021B04.4 or complementary to all of the sequence of the gene A_TM021B04.4.

D₄ 8. (Currently Amended) The transgenic plant of claim 1, further comprising A recombinant nucleic acid molecule [~~comprising a nucleic acid molecule of any of claim 1 to 4~~ and a constitutive promoter sequence or an inducible promoter sequence, operatively linked so that the promoter provides transcription of the recombinant nucleic acid molecule in a ~~host cell~~ the plant.

Claim 9 (~~Cancelled~~)

10. (Currently Amended) The transgenic plant ~~The nucleic acid molecule~~ of claim 16, wherein the recombinant nucleic acid molecule is chemically synthesized.

DS 11. (Currently Amended) The transgenic plant ~~The nucleic acid molecule~~ of claim 16, wherein the recombinant nucleic acid molecule is isolated from *Arabidopsis thaliana*.

D₄ 12. (Currently Amended) The transgenic plant of claim 1 ~~The nucleic acid molecule of any of claims 1 to 4,~~ wherein the PNHX transporter polypeptide extrudes monovalent cations out of the cytosol of a first cell of said plant transformed with the said recombinant nucleic acid molecule ~~of any of claims 1 to 4~~ to provide the first cell with increased salt tolerance relative to a second non-transformed cell of a plant of the same variety as said transgenic plant, wherein the monovalent cations are selected from at least one of the group consisting of sodium, lithium and potassium.

Claim 13 (~~Cancelled~~)

14. (Currently Amended) The transgenic plant of claim 12 ~~The nucleic acid molecule of claim 13~~, wherein the monovalent cations are extruded into a vacuole or into the extracellular space of said plant.

Claims 15-16 (Withdrawn)

Claim 17 (Cancelled)

18. (Currently Amended) An expression transgene ~~vector of claim 17~~, comprising a recombinant nucleic acid molecule operably linked to a promoter selected from the group consisting of a super promoter, a 35S promoter of cauliflower mosaic virus, a drought-inducible promoter, an ABA-inducible promoter, a heat shock-inducible promoter, a salt-inducible promoter, a copper-inducible promoter, a steroid-inducible promoter and a tissue-specific promoter, wherein said nucleic acid molecule is selected from the group consisting of:

(a) a nucleic acid molecule of the coding strand shown in SEQ ID NO:1, or a complement thereof;

(b) a nucleic acid molecule encoding the same amino acid sequence as encoded by the nucleotide sequence of (a);

(c) a nucleic acid molecule that specifically hybridizes under highly stringent conditions to the sequence set forth in SEQ ID NO:1 or the complement of the sequence set forth in SEQ ID NO:1; and

(d) a nucleic acid molecule encoding a PNHX transporter polypeptide that specifically hybridizes under moderately stringent conditions to the sequence set forth in SEQ ID NO:1 or the complement of the sequence set forth in SEQ ID NO:1.

19. (Currently Amended) A host plant cell comprising the recombinant nucleic acid molecule expression transgene of claim 18, or progeny of the plant host cell.

Claim 20 (Cancelled)

Dis 21. (Currently Amended) A plant, a plant part, a seed, a plant cell or progeny thereof, wherein the plant, plant part, seed, plant cell, or progeny thereof comprise ~~comprising~~ the recombinant nucleic acid molecule expression transgene of claim 18.

22. (Original) The plant part of claim 21, comprising all or part of a leaf, a flower, a stem, a root or a tuber.

23. (Original) The plant, plant part, seed or plant cell of claim 21, wherein the plant, plant part, seed or plant cell is of a species selected from the group consisting of alfalfa, almond, apple, apricot, arabidopsis, artichoke, atriplex, avocado, barley, beet, birch, brassica, cabbage, cacao, cantaloupe, carnations, castorbean, cauliflower, celery, clover, coffee, corn, cotton, cucumber, garlic, grape, grapefruit, hemp, hops, lettuce, maple, melon, mustard, oak, oat, olive, onion, orange, pea, peach, pear, pepper, pine, plum, poplar, potato, prune, radish, rape, rice, roses, rye, salicornia sorghum, soybean, spinach, squash, strawberries, sunflower, sweet corn, tobacco, tomato and wheat.

24. (Original) The plant, plant part, seed or plant cell of claim 21, wherein the plant comprises a dicot plant.

25. (Original) The plant, plant part, seed or plant cell of claim 21, wherein the plant comprises a monocot plant.

Dis 26. (Currently Amended) A method for producing a recombinant ~~host~~ plant cell that expresses a nucleic acid molecule, the method comprising introducing into the ~~host~~ plant cell the expression transgene ~~a vector~~ of claim 1817.

27. (Previously Amended) A method of producing a genetically transformed plant which expresses PNHX transporter polypeptide, comprising regenerating a genetically transformed plant from the plant cell, seed or plant part of claim 21.

D12 28. (Currently Amended) The method of claim 26, wherein the genome of the host plant cell also comprises a functional PNHX gene.

29. (Currently Amended) The method of claim 26, wherein the genome of the host plant cell does not comprise a functional PNHX gene.

30. (Original) A transgenic plant produced according to the method of claim 27.

D13 31. (Currently Amended) A method for expressing a PNHX transporter polypeptide in the host plant cell of claim 19, the method comprising culturing the host plant cell under conditions suitable for gene expression.

D14 32. (Currently Amended) A method for producing a transgenic plant that expresses elevated levels of PNHX transporter polypeptide relative to a non-transgenic plant, comprising transforming a plant with the vector expression transgene of claim 1817.

Claim 33 (Withdrawn)

Claims 34-47 (Cancelled)

Claims 48-49 (Withdrawn)

Claims 50-52 (Cancelled)

D15 53. (Currently Amended) A method of producing a genetically transformed plant ~~which expresses or overexpresses a PNHX transporter polypeptide or a plant polypeptide having Na⁺/H⁺ transporter activity and provides increased salt tolerance in a cell, wherein said nucleic acid molecule is not the sequence of the gene A_TM021B04.4 or complementary to all of the sequence of the gene A_TM021B04.4, and wherein the plant has increased salt tolerance,~~ comprising:

DIS
cut

(a) cloning or synthesizing a ~~PNHX~~ nucleic acid molecule selected from the group consisting of: (i) a nucleic acid molecule of the coding strand shown in SEQ ID NO:1, or a complement thereof; (ii) a nucleic acid molecule encoding the same amino acid sequence as encoded by the nucleotide sequence of (i); (iii) a nucleic acid molecule that specifically hybridizes under highly stringent conditions to the sequence set forth in SEQ ID NO:1 or the complement of the sequence set forth in SEQ ID NO:1; and (iv) a nucleic acid molecule encoding a PNHX transporter polypeptide that specifically hybridizes under moderately stringent conditions to the sequence set forth in SEQ ID NO:1 or the complement of the sequence set forth in SEQ ID NO:1, wherein said nucleic acid encodes a ~~or a nucleic acid molecule which codes for a plant Na⁺/H⁺ transporter polypeptide, wherein the polypeptide is capable of providing salt tolerance to a plant and wherein said nucleic acid molecule is not the sequence of the gene A_TM021 B04.4 or complementary to all of the sequence of the gene A_TM021B04.4;~~

(b) inserting the nucleic acid molecule in a vector so that the nucleic acid molecule is operably linked to a promoter;

(c) inserting the vector into a plant cell or plant seed;

(d) regenerating the plant from the plant cell or plant seed, wherein salt tolerance in the plant is increased compared to a wild type plant.

54. (Previously Added) A transgenic plant produced according to the method of claim 53.

Claim 55 (Cancelled)

DIS

56. (Currently Amended) An isolated nucleic acid molecule encoding a TNHX transporter polypeptide or fragment thereof or a PNHX transporter polypeptide or a fragment thereof, ~~or a fragment of a polypeptide having~~ wherein said polypeptide or fragment thereof has Na⁺/H⁺ transporter activity that provides increased salt tolerance in a cell, wherein said nucleic acid comprises comprising [SEQ ID NO. 1].